Name: _____

Unit 1: Ch 5 and 6 Practice Test

1. Algebraic Writing: Answer each question in complete sentences using algebraic terms. Be sure to echo the prompt.

a. A peer tells you that to graph the line: y = -3/4x - 1, you first place a point at negative one on the y-axis, then rise three and run four to the right to find your second point. Write your response to your peer where you agree or disagree with him/her AND explain why. Be as specific as possible.

Should rise three and run to the left four, or fall three and run to the right four. Because the slope is negative either the rise or run has to be negative

b. Define relation and function and explain the relationship between the two.

c. What does algebra mean in Arabic? Explain how this definition makes sense.

Algebra means the reunion of broken parts.

2. Function? Circle YES or NO, then explain your choice using complete sentences and algebraic terms.

a) {(-3,4), (2,5), (3,5), (-1,3)}

(YES) NO

No repeat in the domain

b)

YES NO

c)

YES NO

3. Function Notation: Given f(x) = -2x - 3, fill in the table and answer the question in part b.

a)

x	-1	0	1	-3	-4
f(x)	-1	-3	-5	3	5

$3 = -2x - 3$
$+3 \quad +3$
$\frac{6}{-2} = \frac{-2x}{-2}$
$-3 = x$

$5 = -2x - 3$
$+3 \quad +3$
$\frac{8}{-2} = \frac{-4x}{-2}$
$-4 = x$

b) Display the information from the table as a set of ordered pairs.

(-1,-1) (0,-3) (1,-5) (-3,3) (-4,5)

4. Open-Ended: For each part, create your own example of the situation .

a. an equation in standard form with a slope of 3/4 $3x-4y=12$

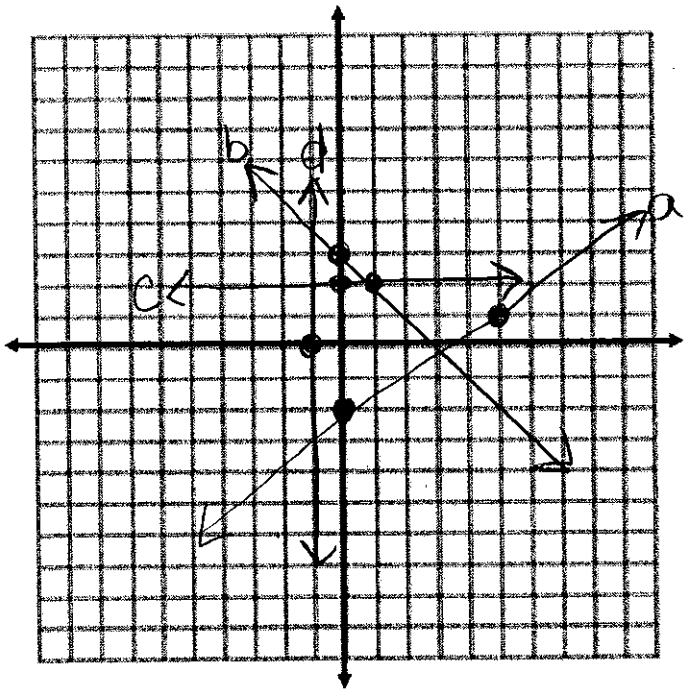
b. an equation of a line with an undefined slope $x=2$

c. a set of ordered pairs that IS NOT a function

(1,3) (1,8) (1,6) (1,-1)

5. Graphing Lines: Graph each line on the coordinate plane. Extend and properly NAME your lines and use a straight edge.

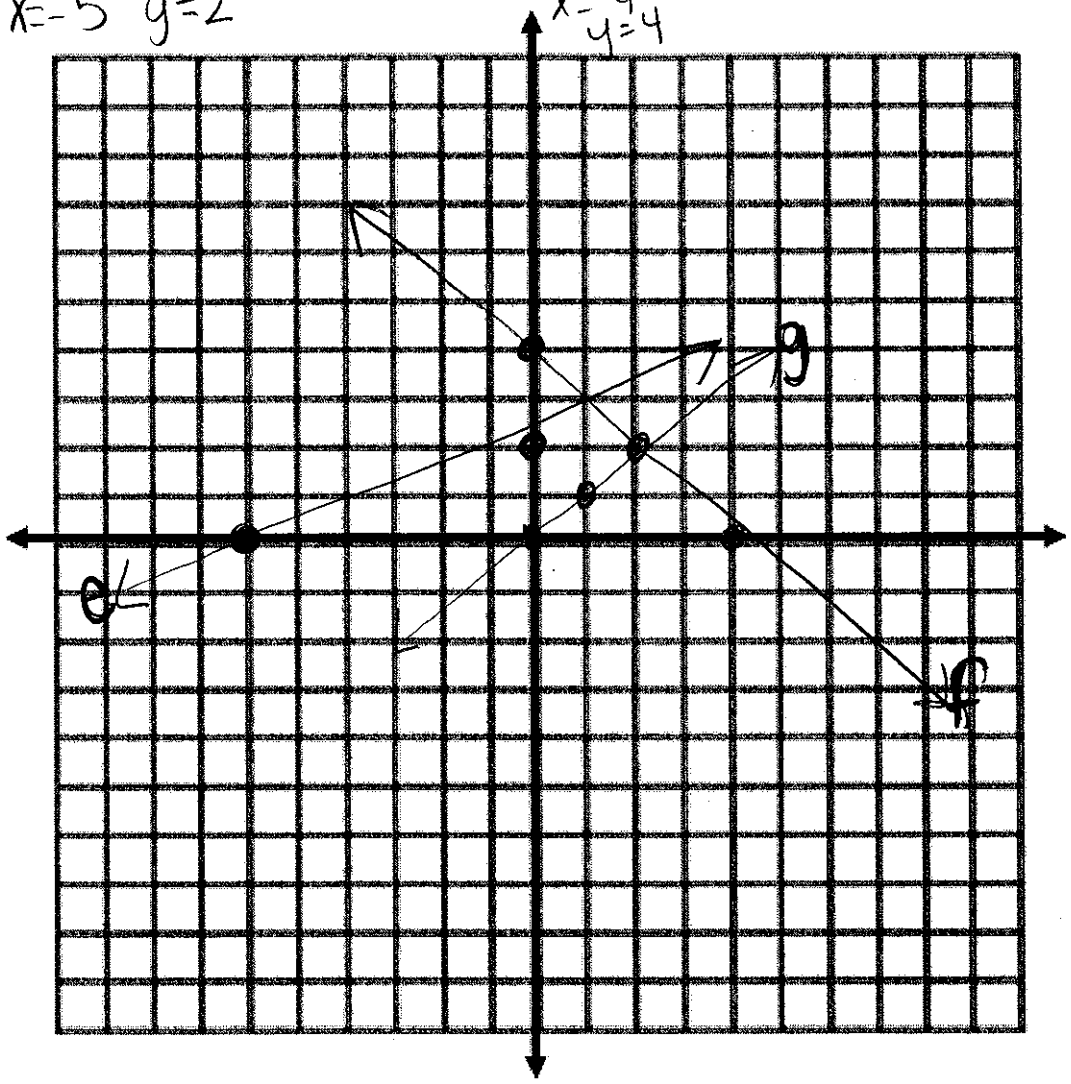
a. $y = 3/5x - 2$ b. $y = -x + 3$ c. $y = 2$ d. $x = -1$



e. $2x - 5y = -10$ $x=-5$ $y=2$

f. $x + y = 4$ $x=4$ $y=4$

g. $y = x$



6. Knowledge of Algebraic Terms

a. Write the slope formula.

$$m = \frac{y_2 - y_1}{x_2 - x_1}$$

b. Write the general slope-intercept form of a linear equation.

$y = mx + b$

c. Please fill in the table below with the bolded words/phrases below:
domain **range** **dependent variable** **independent variable** **y-axis** **x-axis**

Input	Output
domain	range
independent	dependent
x-axis	y-axis

7. Slope: Find the slope of the line between the given points. Write your answer as a reduced fraction, if possible.

a. (-3, 7) and (4, 5)
$x_1\ y_1 \quad x_2\ y_2$

$$\frac{5-7}{4-(-3)} = \boxed{\frac{-2}{7}}$$

b. (6, -1) and (6, 4)
$x_1\ y_1 \quad x_2\ y_2$

$$\frac{4-(-1)}{6-6} = \frac{5}{0} = \boxed{\text{und}}$$

c. (-7, 1) and (-7, -1)
$x_1\ y_1 \quad x_2\ y_2$

$$\frac{-1-1}{-7-(-7)} = \frac{-2}{0} = \boxed{\text{und}}$$

8. Rate of Change: Find the rate of change for each situation. Be sure to include units.

a. In his second week of saving money, Owen has $260 in his bank account. After eight weeks of saving money, Owen has $620 in his bank account.

$$\frac{620-260}{8-2} = \frac{360}{6} = \$60 \text{ per week}$$

b. A velociraptor hatches and is 5 inches long. On his six month birthday, the velociraptor is 1 foot, 2 inches long.

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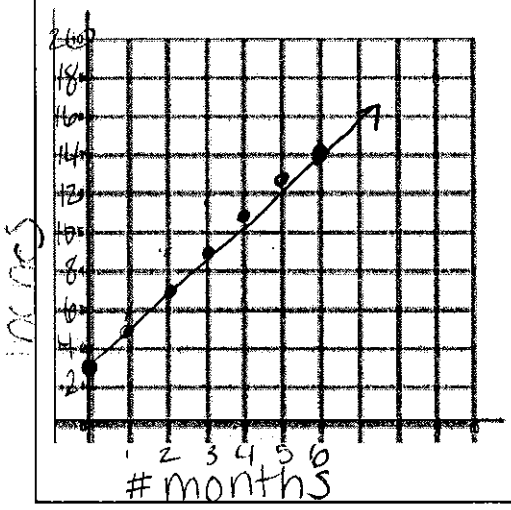
$$\frac{14-5}{6-0} = \frac{9}{6} = \frac{3}{2} = 1.5 \text{ inches/month}$$

c. Use the graph below to determine rate of change.



9. Writing Equations of Lines

a. Write the equation of the line in slope-intercept form that passes through the points (9, -8) and (10, 6).

x_1 y_1 x_2 y_2

① Slope $m = \frac{6+(+8)}{10-9} = \frac{14}{1} = \boxed{14}$

② pick 1 point & substitute & solve

$6 = 14(10) + b$

$6 = 140 + b$

$-134 = b$

③ Write equation $\boxed{y = 14x - 134}$

b. Write the equation of the line parallel to y = 9x + 1 that passes through (-1/9, -3).

① slope $m = 9$

② Substitute & solve

$-3 = 9(-1/9) + b$

$-3 = -9/9 + b$

$-3 = -1 + b$

$+1 \quad +1$

$-2 = b$

③ Write the equation

$\boxed{y = 9x - 2}$

c. Write the equation of the line perpendicular to $x + 2y = -9$ that passes through $(\underset{x}{6}, \underset{y}{-5})$.

① slope $m = \frac{-A}{B}$ $m = \frac{-1}{2}$ so neg rec = 2

② substitute & solve

$-5 = 2(6) + b$

$-5 = 12 + b$

$-12 \quad -12$

$-17 = b$

③ write

$\boxed{y = 2x - 17}$

10. Real World Situation #1: Your plumber charges you a flat rate of $100 per visit, plus an additional $50 per super-gross clog.

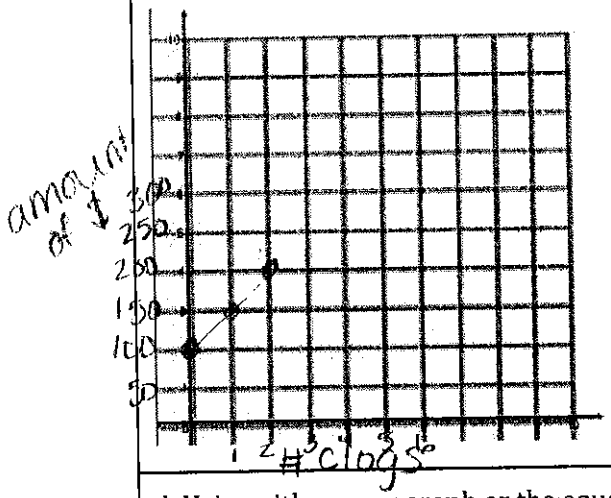
a. Define two variables that make sense for the situation. Use the word LET.

Let x = # of clogs Let y = total cost

b. Write an equation in slope-intercept form to represent this situation.

$y = 50x + 100$

c. Graph this situation on the first quadrant of the coordinate plane. **Be sure to consider whether this data is continuous or discrete. Label your axes.**



d. Using either your graph or the equation, find the total amount of money you would pay your plumber if you had 6 super-gross clogs.

$y = 50(6) + 100$

$y = 300 + 100$

$\boxed{\$400}$

11. Real World Situation #2: Eva is selling soccer balls and soccer cleats. The soccer balls cost $20 each and the cleats cost $50 for each pair. She wants to make at least $500 selling the equipment.

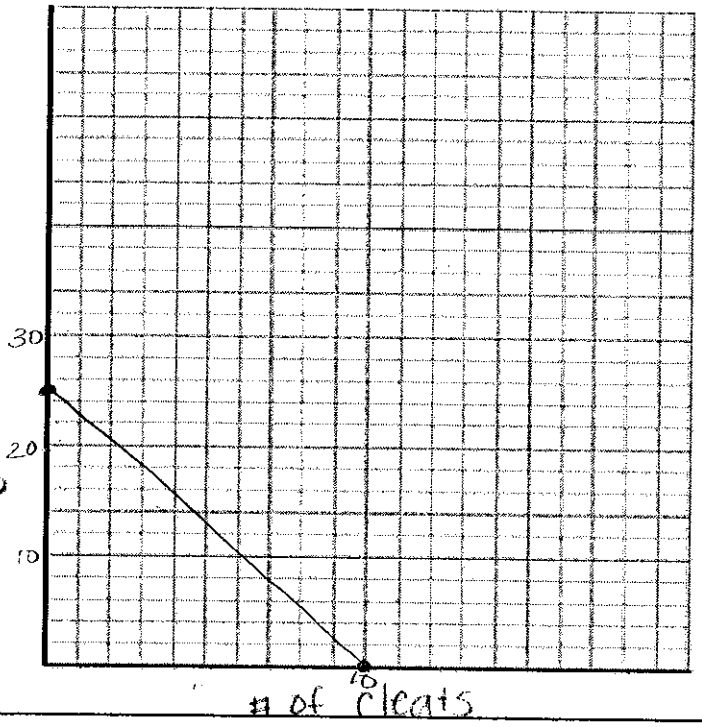
a. Define two variables that make sense for the situation. Use the word LET.

Let x = # of cleats Let y = # of soccer balls

b. Write an equation in standard form to represent this situation.

$50x + 20y = 500$

c. Graph this situation on the first quadrant of the coordinate plane. **Be sure to consider whether this data is continuous or discrete. Label your axes.**



$50x + 20y = 500$

$x = 10$
$y = 25$

# of soccer balls

d. If Eva sells five soccer balls, how many pairs of cleats will she have to sell in order to make $500?

$50x + 20(5) = 500$
$50x + 100 = 500$

$\frac{50x}{50} = \frac{400}{50}$
$x = 8$

e. Write at least three MORE combinations of soccer balls and cleats that Eva could sell in order to make $500.

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